CSE2001 -Queue Operations using Arrays

Code:

```
package com.company;
import java.util.*;
    class Queue{
        private static int front, rear, size;
        private static int[] queue;
        Queue(int n){
            front = rear = 0;
            size = n;
            queue = new int[size];
        }
        void enqueue(int data){
            if (size == rear) {
                System.out.println("\n\tBeep. Beep. Queue is full. Better dequeue elements to continue further.");
            }
            else {
                queue[rear] = data;
                rear++;
                System.out.println("\n\tQueue Element "+data+" is successfully enqueued.");

            }
        }
```

```
        void dequeue(){
            if (front == rear) {
                System.out.println("\n\tBeep. Beep. Queue is empty i.e Element cannot be dequeued.");
            }
            else {
                if (rear - 1 >= 0) System.arraycopy(queue,  srcPos: 1, queue,  destPos: 0,  length: rear - 1);
                if (rear < size)
                    queue[rear] = 0;
                rear--;
                System.out.println("\n\tQueue Element dequeued.");
            }
        }
        void display(){
            int i;
            if (front == rear) {
                System.out.println("\n\tBeep. Beep. Queue is empty.");
                return;
            }
            System.out.print("\tThe Queue elements of the Array are as follows: \n\t");
            for (i = front; i < rear; i++) {
                System.out.printf("%d ", queue[i]);
```

```java
public class Main
{
    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        Queue q = new Queue( n: 8);
        q.enqueue( data: 3);
        q.enqueue( data: 33);
        q.enqueue( data: 333);
        q.enqueue( data: 99);
        q.enqueue( data: 999);
        char choice;
        do{
            System.out.println("\n\t------------------------------");
            System.out.println("\t\t  MENU OF OPERATIONS ");
            System.out.println("\t------------------------------");
            System.out.println("\tUser, Go ahead and try the following standard Queue operations!");
            System.out.println("\t1. Enqueue\n\t2. Dequeue\n\t3. Display\n\t4. Exit.");
            System.out.print("\n\tEnter your choice: ");
            int ch = sc.nextInt();
            switch(ch){
                case 1: System.out.print("\n\tThe integer to be inserted? : ");
                    int n = sc.nextInt();
                    System.out.print("\n\t'Enqueue' in process... ");
                    q.enqueue(n);
                    break;
                case 2: System.out.print("\n\t 'Dequeue' a success!");
                    q.dequeue();
                    break;
                case 3: q.display();
                    break;
                case 4: System.out.println("\n\tExiting...");
                    break;
                default : System.out.println("\n\tBeep. Beep. Wrong Input. Try Again.");
            }
            System.out.print("\n\tDo you want to continue? (Y/N): ");
            choice = sc.next().charAt(0);
        }while(choice == 'Y' || choice == 'y');
        System.out.println("\t  ~ SALMA 20BCE7605");
        System.out.println("\t------------------------------");
    }
}
```

Output:

```
Queue Element 3 is successfully enqueued.

Queue Element 33 is successfully enqueued.

Queue Element 333 is successfully enqueued.

Queue Element 99 is successfully enqueued.

Queue Element 999 is successfully enqueued.

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      MENU OF OPERATIONS
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User, Go ahead and try the following standard Queue operations!
1. Enqueue
2. Dequeue
3. Display
4. Exit.
```

```
Enter your choice: 1

The integer to be inserted? : 12

'Enqueue' in process...
Queue Element 12 is successfully enqueued.

Do you want to continue? (Y/N): Y

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      MENU OF OPERATIONS
------------------------------
User, Go ahead and try the following standard Queue operations!
1. Enqueue
2. Dequeue
3. Display
4. Exit.
```

```
Enter your choice: 1

The integer to be inserted? : 77

'Enqueue' in process...
Queue Element 77 is successfully enqueued.

Do you want to continue? (Y/N): Y

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      MENU OF OPERATIONS
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User, Go ahead and try the following standard Queue operations!
1. Enqueue
2. Dequeue
3. Display
4. Exit.
```

```
Enter your choice: 2

 'Dequeue' a success!
Queue Element dequeued.

Do you want to continue? (Y/N): Y

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      MENU OF OPERATIONS
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User, Go ahead and try the following standard Queue operations!
1. Enqueue
2. Dequeue
3. Display
4. Exit.

Enter your choice: 3
The Queue elements of the Array are as follows:
```

```
Enter your choice: 3
The Queue elements of the Array are as follows:
33 333 99 999 12 77
Do you want to continue? (Y/N): Y

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      MENU OF OPERATIONS
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User, Go ahead and try the following standard Queue operations!
1. Enqueue
2. Dequeue
3. Display
4. Exit.

Enter your choice: 4

Exiting...
```

----------Fin----------